



DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

49 CFR Part 571

Docket No. NHTSA-2012-0036

RIN 2127-AL05

Federal Motor Vehicle Safety Standards;

Seat Belt Assembly Anchorages;

Incorporation by Reference

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: This NPRM proposes to amend Federal Motor Vehicle Safety Standard No. 210, “Seat belt assembly anchorages,” to specify a new force application device for use as a testing interface to transfer loads onto the seat belt anchorage system during compliance tests of anchorage strength. The device represents a human torso and pelvis. The new device comes in two sizes, one representative of a mid-size adult male, and the other of a small occupant. We propose both sizes be used in FMVSS No. 210. We believe that the devices provide a consistent test configuration and load path to the seat belt assembly anchorages. We are proposing this amendment because the devices are significantly easier to use than the current body blocks.

DATES: Comments must be received on or before [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments to the docket number identified in the heading of this document by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the online instructions for submitting comments.
- Mail: Docket Management Facility, M-30, U.S. Department of Transportation, West Building, Ground Floor, Rm. W12-140, 1200 New Jersey Avenue, SE, Washington, DC 20590.
- Hand Delivery or Courier: West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue, SE, between 9 am and 5 pm Eastern Time, Monday through Friday, except Federal holidays.
- Fax: (202) 493-2251.

Regardless of how you submit your comments, you should mention the docket number of this document.

You may call the Docket at 202-366-9324.

Instructions: For detailed instructions on submitting comments and additional information on the rulemaking process, see the Public Participation heading of the Supplementary Information section of this document. Note that all comments received will be posted without change to <http://www.regulations.gov>, including any personal information provided. Please see the Privacy Act discussion below.

Privacy Act: Anyone is able to search the electronic form of all comments received into any of our dockets by the name of the individual submitting the comment (or signing the comment, if submitted on behalf of an association, business, labor union, etc.). You may

review DOT's complete Privacy Act Statement in the Federal Register published on April 11, 2000 (65 FR 19477-78).

FOR FURTHER INFORMATION CONTACT:

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I. FMVSS No. 210

FMVSS No. 210, “Seat belt assembly anchorages,” applies to passenger cars, multipurpose passenger vehicles (MPVs), trucks, and buses. The standard establishes requirements for seat belt assembly anchorages to ensure the anchorages are properly located for effective occupant restraint and to reduce the likelihood of their failure. As to the latter, the standard requires seat belt anchorages to withstand specified forces to increase the likelihood that the belts will remain attached to the vehicle structure in a crash. Under the standard, seat belt anchorage assemblies for lap/shoulder belts must withstand a 13,345 Newton (N) (3,000 pounds (lb)) force applied to the lap belt portion of the seat belt assembly simultaneously with a 13,345 N force applied to the shoulder belt portion of the seat belt assembly. The anchorage assemblies must withstand the force as it is increased over thirty seconds, and withstand that force as it is held for 10 seconds.¹ These forces are applied to the shoulder portion of the belt (for a lap/shoulder belt) by an upper torso body block (Figure 3 in FMVSS No. 210) and the lap belt portion of the belt by a pelvic body block² (Figures 2A and 2B in FMVSS No. 210 and Figure 2 in FMVSS No. 222, “School bus passenger seating and crash protection”).

II. Proposed New Force Application Device

We propose to amend FMVSS No. 210 to reference a new “force application device” (FAD), which would replace the pelvic body block for all belt types and the upper torso body block for lap/shoulder belts. The FAD consists of an upper torso portion and a pelvic portion

¹ For lap belt only anchorages, the seat belt anchorage must withstand force as it is increased to 22,241 N (5,000 pounds) over thirty seconds and withstand that force as it is held for 10 seconds.

² The particular pelvic body block used depends on the type of seat. Typically the body block in Figure 2A of FMVSS No. 210 is used. The Figure 2B body block of FMVSS No. 210 is optionally used for center seating positions. The FMVSS No. 222 Figure 2 body block is only used for school buses with a GVWR of 4,536 kilograms (kg) (10,000 pounds) or less.

hinged together to form a one-piece device, and is available in two sizes (see Figures 5 and 6 in the proposed regulatory text). We propose both sizes be incorporated into the FMVSS No. 210 test procedure.

a. FAD1 and FAD2

The two different size versions of the FADs are called FAD1 and FAD2. We estimate the cost of each FAD (both the FAD1 and FAD2) to be approximately \$8,000.

The external dimensions of the FAD1 are based on digital data³ developed by the University of Michigan Transportation Research Institute (UMTRI) as a representation of the 50th percentile adult male. The FAD1, which weighs 55.8 kg (123 lb), replicates the torso and lap portions of what UMTRI calls the “Golden Shell” and reproduces the seat belt angles produced when a seat belt is fastened around a 50th percentile adult male. We believe that the FAD1 and FAD2 provide a consistent test configuration and load path to the seat belt assembly anchorages. A detailed description of the FAD can be found in a technical report prepared for the agency (“Final Report: Development of a Combination Upper Torso and Pelvic Body Block for FMVSS 210 Test, Revision A,” May 22, 2003, KARCO Engineering, LLC), a copy of which has been placed in the docket for this NPRM.

NHTSA developed the specifications for the FAD2, the smaller version of the force application device, to use at designated seating positions (DSPs) that are too narrow in width to accommodate the FAD1, such as some rear center seats in passenger cars and MPVs. In addition to enabling the testing of the seat belt assembly anchorages of smaller-width DSPs, the FAD2 also would ensure that the test simulates parameters (e.g., belt angle and placement) that are consistent with a smaller person sitting in the seat.

³ Robbins, D. 1985. “Anthropometric Specifications for Mid-Size Male Dummy,” Volume 2, UMTRI, DOT HS 806 716.

The table below summarizes the dimensions of the FAD1 and the FAD2, and, for comparison purposes, the dimensions of the Hybrid III (HIII) test dummies representing the 50th percentile adult male, 10-year-old child, and the 5th percentile adult female.

Table 1. FAD and HIII Dummy Dimensions

	FAD1	HIII 50th Male	FAD2	HIII 10- Year-Old Child	HIII 5th Percentile Female
Weight (lb/kg)*	123.00/55.79	171.30/77.70	47.50/27.55	77.60/35.20	108/48.99
Shoulder Pivot Height (in/millimet ers (mm))	18.50/470	20.2/513	12.38/314	15.55/395	17.5/445
Shoulder Breadth (in/mm)	17.73/450	16.90/429	11.97/304	12.40/315	14.1/358
Hip Breadth (in/mm)	13.97/355	14.3/363	9.43/240	10.40/264	12.1/307

* There is a weight difference in part because the FADs do not have arms, legs, or a head.

As to when the agency would use the FAD1 versus the FAD2 to test the seat belt anchorages, NHTSA proposes the following. The agency would, in the first instance, attempt to fit the FAD1 in the DSP to test the seat belt assembly anchorages, using the procedure described in the next section below. For tests conducted in accordance with S4.2.4 of FMVSS No. 210 (simultaneous testing of adjacent DSP anchorages),⁴ if after the FAD1 devices are installed, but prior to conducting the test, there is contact between the FAD1s (or if there is contact between the FAD1s that prevent them from fitting side-by-side), an inboard FAD1 would be replaced with a FAD2. If there is still contact between the FADs, and if

⁴ Briefly stated, S4.2.4 specifies that anchorages, attachment hardware, and attachment bolts shall be tested by simultaneously loading them if: (a) the DSPs are common to the same occupant seat and face the same direction, or (b) the DSPs are not common to the same occupant seat, but a DSP has an anchorage that is within 305 mm of an anchorage for one of the adjacent DSPs, provided that the adjacent seats face in the same direction.

there is another inboard DSP, an additional inboard FAD1 would be replaced with a FAD2, and so on. If the contact continues with all inboard DSPs with FAD2s, the FAD1 in the non-driver side outboard DSP would be replaced with a FAD2. If there is still contact between the FADs, the FAD1 in the driver side outboard DSP would be replaced with a FAD2.

Comments are requested on this procedure.

b. Positioning the FAD

The regulatory text of FMVSS No. 210 would specify how the FADs would be positioned on a vehicle seat at the outset of the strength test.⁵ Generally, the seat back would be at the manufacturer's design seat back angle, and the seat in its rearmost and lowest position. The FAD would be placed so that its midsagittal plane is vertical and aligned with the longitudinal centerline of the seat back. Prior to the application of forces described in S5 of FMVSS No. 210, the FAD is set up such that the pelvis portion of the FAD rests on the seat and makes contact with the seat back. Holding the pelvis portion in place, the technician positions the torso portion of the FAD in contact with the seat back. The technician would place the lap belt over the lap portion of the pelvis, and if applicable, the shoulder belt across the FAD's torso portion. Once the FAD is in place, the technician would remove enough slack such that the seat belt is snug⁶ against the FAD, and would ensure that the seat belt is locked in this position. The technician would then attach the device used to apply the

⁵In the 1990s, NHTSA did not prevail in an enforcement action brought against a manufacturer for an apparent noncompliance with FMVSS No. 210. In the test, NHTSA positioned the pelvic body block away from the rear seat back, believing that positioning the body block in this manner was within the test parameters of the standard. The manufacturer argued that its vehicle met FMVSS No. 210 when tested with the body block placed against the seat back, and that NHTSA's placement of the pelvic body block forward of the seat back was not required by FMVSS No. 210. Ultimately, the U.S. Court of Appeals for the District of Columbia Circuit determined that NHTSA failed to provide adequate notice about the correct placement of the pelvic body block, i.e., that it could be placed forward of the seat back. United States v. Chrysler Corporation, 158 F.3rd 1350 (D.C. Cir. 1998).

⁶ "Snug" refers to when enough slack is removed from the seat belt(s) such that a 31.75 mm (1¼ inch) diameter wooden rod will not pass between the FAD and the belt with a maximum force of 2.22 N (0.5 lb-force) exerted tangent to the FAD shoulder or lap belt interface.

requisite load(s), and apply the load(s) in the manner described in S5 of the standard. (The May 22, 2003 docketed test report illustrates a typical pull test set-up.)

NHTSA has tentatively concluded that the regulatory text proposed today provides a clear explanation of how the agency will position the FADs in FMVSS No. 210 compliance tests and that following that text will result in consistent positioning of the FADs. NHTSA requests comments on whether and how the proposed text could be improved to provide clearer information on how the FADs would be positioned and how the FMVSS No. 210 test would be conducted.

c. Drawing Package

The FAD1 and the FAD2 each consist of component assemblies specified in approximately 32 drawings that we have docketed. We believe that the drawing package is sufficiently detailed to allow manufacturers to fabricate the FAD1 and FAD2. During development of this NPRM, we compared a FAD1 and FAD2 manufactured by Denton ATD using the drawing package to a FAD1 and a FAD2 that pre-existed the drawing package. NHTSA's Vehicle Research and Test Center dimensionally inspected the FADs manufactured according to the drawings and the preexisting FADs.⁷ Based upon this inspection, the agency determined that the devices were sufficiently equivalent. From this evaluation, we tentatively conclude that the drawing package is sufficient to allow consistent fabrication of the FAD1 and FAD2.

III. Data from Use of the FADs

a. Consistent Positioning of the FADs on a Vehicle Seat

⁷ A document describing the inspection criteria used to make this determination has been placed in the docket for this NPRM.

Test data indicate that the FADs can be positioned on a vehicle seat in a repeatable manner. In an assessment of the FADs during development of the devices, different test technicians positioned the FAD1 and FAD2 three times in the following nine vehicles: the model year (MY) 2002 Buick LeSabre, MY 2002 Toyota MR-2, MY 1995 Plymouth Neon, MY 1995 Toyota Previa, MY 2000 Chevrolet S-10, MY 2002 Chevrolet TrailBlazer, MY 2003 Volkswagen Jetta, MY 1996 Ford F-350 (U-Haul), and MY 1992 Dodge Ram 350. The technicians were provided a written copy of the seating procedure and no additional instructions. Once each technician had seated a FAD in a test vehicle, a Faro Arm⁸ was used to record the precise location of three predetermined points on the FAD relative to a fixed point on the test vehicle.

The results from each technician were compared. On average, the technicians were able to place a FAD in a specific test vehicle so that the predetermined measuring points were within 6.35 mm ($\frac{1}{4}$ inch) of the same point, on the same FAD, in the same test vehicle, placed by the other technicians. (See “Final Report: Development of a Combination Upper Torso and Pelvic Body Block for FMVSS 210 Test, Revision A,” *supra*.) We tentatively conclude that a 6.35 mm ($\frac{1}{4}$ inch) variability in seating the FAD is acceptable. In comparison, FMVSS No. 208, “Occupant crash protection,” at S10.4.2.1, specifies a 12.7 mm ($\frac{1}{2}$ inch) tolerance for the H-point.⁹ A 6.35 mm ($\frac{1}{4}$ inch) variability in seating the FAD is well within the same range of tolerance as specified in FMVSS No. 208 for positioning the H-point. This is even more compelling considering the technicians performing the FAD test were unaccustomed to the seating procedure, and that the results were based on the comparison of three points of the FAD surface, not just one.

⁸ A Faro Arm is a multiple axis articulated measuring arm with six degrees of freedom.

⁹ H-point means the mechanically hinged hip point of a manikin which simulates the actual pivot center of the human torso and thigh.

b. Repeatability of Force Measurement

Test data indicates that in tests with the FADs, comparable forces would be measured, within specified tolerances, from tests of a given seat belt anchorage during repeated trials on the same vehicle body design. Our assessment is based on results of four tests conducted to assess the repeatability of the FAD1 test device. The test configuration was set up in a generic configuration to minimize variability. Anchorage load cells were mounted to a rigid test rig, the vehicle seat was replaced with a rigid seat, and the seat belt webbing was replaced with high strength webbing.

In each test, the FAD1 was positioned, belted, and pulled per the proposed FMVSS No. 210 test procedure. A statistical analysis was performed on both the peak force values as well as time-based metrics. The coefficient of variance (CV) was used to assess the variability of the peak values for each data channel in order to determine the repeatability of the test results and to rate the channels based on an established CV acceptance criteria. The analysis of these tests can be found in a NHTSA Technical Report, “Repeatability Analysis of the Force Applied to Safety Belt Anchors Using the Force Application Device (May 2009),” a copy of which is in the docket for this NPRM.

The results indicated that all data channels, except two, were rated “excellent.” Of the two, one data channel was rated “good” and another was rated “acceptable.” To model statistically the output of the entire system over different tests conducted at different points in time, a general linear model (GLM) and a mixed model were used. The GLM produced a time-based p-value of 0.98, which means that there was no statistically significant difference over tests 1 through 4 for the four repeated measures while considering all the data channels. Similarly, there was no statistically significant interaction between the test number and the

data channels. This is shown with a p-value of 0.95. These results showed that the repeated force plots of the various channels had similar trends. The mixed model results were similar to the GLM and similarly showed that the four tests were repeatable and consistent over time.

Overall, the test procedure using the FAD1 was demonstrated to be repeatable, with fourteen force channels meeting the “excellent” criteria, one channel meeting the “good” criteria and one channel meeting the “acceptable” criteria. The one “acceptable” data channel (retractor Y-axis) had a large measurement error relative to the other channels as seen by the “acceptable” coefficient of variation. However, the scale of the mean value, around 889.64 N (200 pounds), is relatively small compared to the 13,345 N (3,000 pound) belt load, thus the greater measurement error has a minor effect on the overall test results. Both the GLM and the mixed model method showed that there are no statistically significant correlations between the test number and the data channel and that the repeated force values of various channels share similar trends.

The agency has no reason to believe that similar results would not be achieved with the FAD2.

c. Vehicle Tests

1. FADs Do Not Appear to Affect the Stringency of the Test

We believe that using the FADs would not affect a vehicle’s performance under FMVSS No. 210. That is, use of the FADs would not affect the stringency of the strength test, and would not affect the likelihood of a vehicle’s meeting or not meeting the standard’s strength requirements.

NHTSA tested nine vehicles with the FAD1, FAD2, and current FMVSS No. 210 body blocks in adjacent seating positions installed in the vehicles shown in Table 2 below.

The FAD1 was in the left seat, the FAD2 was in the center seat, and the current upper torso and pelvic body blocks were on the right seat. (Each of the nine indicant Test Reports are in the docket for this NPRM.) Vehicles that met FMVSS No. 210's strength requirements using the current body blocks also met those strength requirements using the FADs.

Table 2. Nine Indicant Tests

Vehicle Year, Make, and Model	FMVSS No. 210 Test Results	
	w/Current Body Blocks	w/FAD1 and FAD2
2005 VW Passat	Pass	Pass
2005 Acura RL	Pass	Pass
2005 Toyota Avalon	Pass	Pass
2005 Buick Lacrosse	Pass	Pass
2005 Chrysler 300	Pass	Pass
2005 Chevy Express 11 Passenger Van	Pass	Pass
2005 Chrysler Town and Country Mini Van with Stow N' Go seating	Pass	Pass
2005 Ford F-150 Super Crew Cab Pick-up Truck	Pass	Pass
2005 Chevy Aveo	Pass	Pass

2. FADs Appear to Offer Advantages

During the vehicle test program, it appeared that there are several advantages to testing with the FADs as compared to testing with the current body blocks, in addition to the factor, discussed above, that the FADs are more representative of a human form than the upper torso and pelvic body blocks.

As noted in the docketed test reports, an advantage to the FAD geometry is that it does not put an unrealistic bending force on the belt buckle, unlike the pelvic body block. Also, the FADs lack the sharp edges of the pelvic body block, which reduces the likelihood of seat belt buckle breakage during testing. (See docketed test reports.) Buckle breakage

occurs sometimes with the pelvic body block, which results in replacing the seat belt with steel cable, as allowed by the standard.¹⁰

We have also noted that, due to the range of motion associated with the current body blocks (which can move independently of each other), there can be excessive spooling out of seat belt webbing during an FMVSS No. 210 test, to the point where the hydraulic rams can reach their full stroke during a test before a requisite force level is reached. When the hydraulic rams reach their full stroke before the test is completed, the test must be stopped so the rams can be re-hooked for the test to continue. The proposed FADs provide a more realistic range of motion because they are shaped like a human, with the upper torso portion hinged to the pelvic portion. The two parts cannot move as independently of each other as can the current FMVSS No. 210 body blocks. The FADs do not result in as much seat belt spool-out as seen with the current body blocks and thereby eliminate the problem of bottoming-out the hydraulic cylinders during the test.

Another noteworthy advantage of the proposed FADs over the current FMVSS No. 210 body blocks is that the FADs necessitate significantly less effort and time to install in a test vehicle. A FAD can be installed in a vehicle seat in less than 5 minutes, while the current body blocks typically necessitate over 10 minutes.¹¹ This estimated reduction in time results from the ease-of-use of the FADs; they required only one attempt for installation in our tests. In contrast, for the current body blocks, typically numerous attempts at positioning are necessary because the upper torso block often falls out of position during set-up and needs to be re-installed. A test of a common seat with three designated seating positions can

¹⁰ S5 of the standard specifies that, when testing the anchorage, the anchorage is connected to material whose breaking strength is equal to or greater than the breaking strength of the webbing for the seat assembly installed as original equipment at that seating position.

¹¹ See Karco Engineering, LLC “Final Report: Development of a Combination Upper Torso and Pelvic Body Block for FMVSS 210 Test, Revision A,” *supra*, at page 28.

be as much as 20 minutes shorter when using the FADs versus when using the current body blocks, which can be associated with decreased labor costs, and ultimately, a decrease in the total cost of the test. Furthermore, the current body blocks need two technicians for installation, while the FADs can be installed by one technician.¹²

For the reasons provided above, we propose to amend FMVSS No. 210 to incorporate the FAD1 and FAD2 into the standard in place of the upper torso and pelvic body blocks.

IV. Lead Time

The proposed effective date (the date that the text of FMVSS No. 210 would be revised in the Code of Federal Regulations) is 180 days after date of publication of the final rule.

The proposed compliance date for testing with the FADs would be three years from the date of publication of the final rule. The agency would use the FADs to test vehicles manufactured on or after the first September 1st that is three years from the date of publication of the final rule. We have tentatively determined that three years is sufficient time for manufacturers to procure the FADs and test their vehicles' seat belt anchorages with the FADs. Optional early compliance would be permitted.

Comment is sought on the proposed lead time.

V. Miscellaneous Issues

a. Metric Units

There are English and metric units used in FMVSS No. 210. At present, force measurements in the introductory sentence of S4.2.1 and in the introductory sentence of S4.2.2 are in pounds (5,000 pounds in S4.2.1 and 3,000 pounds in S4.2.2). The preferred

¹² Assuming the use of one technician at a pay rate of \$75 per hour and a savings of 5 minutes per seat installation, we estimate that using the FADs to test a vehicle may result in a total labor cost savings of \$93.75 (or \$18.75 per seating position), as compared to tests of the vehicle using the current body blocks.

method of measurement in the FMVSSs is the metric system. To reflect the preference for the metric system and to promote consistency throughout FMVSS No. 210, these measurements specified in pounds are proposed to be specified in Newtons (N). Therefore, for S4.2.1, we propose to specify the force as “22,241 N (5,000 pounds)” and for S4.2.2, we propose to specify the force as “13,345 N (3,000 pounds).”

b. Note--Testing Motorcoach Seat Belt Anchorages

In 2010, NHTSA published an NPRM that, among other matters, proposed to require passenger seat belts on motorcoaches (75 FR 50958; August 18, 2010; Docket NHTSA-2010-0112). Today’s NPRM would amend FMVSS No. 210 as applied to all vehicles subject to the standard, including motorcoaches. If the proposal is adopted, the FAD1 and FAD2 would be used instead of the current upper torso and pelvic body blocks to test seat belt anchorages on motorcoaches manufactured on or after the compliance date of the standard.

c. Note--Figure 3 in FMVSS No. 210

For clarification purposes, we would like to point out that, even if we adopt the FADs in a final rule, there would still be a need for the upper torso block shown in Figure 3 of FMVSS No. 210. The upper torso body block depicted in Figure 3 is currently referenced in S5.1.6 of FMVSS No. 222 for use in testing school bus seats to that standard’s quasi-static test requirements. The quasi-static test requirements help ensure that seat backs incorporating lap/shoulder belts are strong enough to withstand the forward pull of the torso belts in a crash and the forces imposed on the seat from unbelted passengers to the rear of the belted occupants. NHTSA would continue to use the (Figure 3) torso body block in FMVSS

No. 222's quasi-static test. (If the FADs are adopted, the school bus seat belt anchorages would be tested under FMVSS No. 210 with the FADs.)

d. Note--Side-Facing Seats Correction

The regulatory text in this NPRM sets forth S4.2 without the clause “except for side-facing seats,” which appears several times in current S4.2. These clauses were made obsolete by an October 8, 2008 final rule¹³ which announced our decision to eliminate the exclusion of side-facing seats (and thus apply S4.2's strength requirements to side-facing seats) but which failed to amend S4.2 to reflect this change. A correcting amendment removing the clauses from S4.2 will be issued by the agency. In the meantime, today's document shows S4.2 in corrected form.

VI. Rulemaking Analyses and Notices

A. Executive Order (E.O.) 12866 (Regulatory Planning and Review), E.O. 13563, and DOT Regulatory Policies and Procedures

The agency has considered the impact of this rulemaking action under E.O. 12866, E.O. 13563, and the Department of Transportation's regulatory policies and procedures. This rulemaking was not reviewed by the Office of Management and Budget under E.O. 12866, “Regulatory Planning and Review.” The rulemaking action has also been determined to be not significant under the Department's regulatory policies and procedures.

We estimate the cost of each FAD, both the FAD1 and FAD2, to be approximately \$8,000 each. Assuming a vehicle manufacturer or testing facility purchases a set of two

¹³ 73 FR 58887, 58888; definition of “designated seating position.”

FAD1s and three FAD2s, the principal cost associated with this NPRM is the one-time¹⁴ purchase cost of the set, totaling \$40,000. As discussed above, the FADs require significantly less effort, time and personnel to install in the test vehicle. Thus, we believe there would be associated cost savings which could off-set the purchase cost of the FADs.

The FAD2 is smaller than the FAD1 and would enable NHTSA to test belt anchorages at DSPs that do not fit the latter device. However, additional safety benefits accruing beyond those already attributable to FMVSS No. 210 cannot be quantified.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980, as amended, requires agencies to evaluate the potential effects of their proposed and final rules on small businesses, small organizations and small governmental jurisdictions. I hereby certify that this proposed rule, if made final, would not have a significant economic impact on a substantial number of small entities. Small organizations and small governmental units would not be significantly affected since the potential cost impacts associated with this action would not significantly affect the price of new motor vehicles.

The Small Business Administration's (SBA's) size standard regulation at 13 CFR Part 121, "Small business size regulations," prescribes small business size standards by North American Industry Classification System (NAICS) codes. NAICS code 336111, Automobile Manufacturing prescribes a small business size standard of 1,000 or fewer employees. NAICS code 336399, All Other Motor Vehicle Parts Manufacturing, prescribes a small business size standard of 750 or fewer employees.

¹⁴ Given that the materials that compose the new FADs are polyurethane castings with aluminum structural components and the peripheral attachments are aluminum and steel, we do not expect them to experience any appreciable wear as a result of the FMVSS No. 210 testing and, therefore, we believe that the FADs will have a long service life.

The majority of motor vehicle manufacturers would not qualify as a small business. There are a number of vehicle manufacturers that are small businesses. We anticipate that these small businesses will not directly incur the costs of purchasing the FADs to be used in FMVSS No. 210. However, if these small businesses perform their own FMVSS No. 210 testing or purchase testing services for FMVSS No. 210 compliance, they will benefit from the easier-to-use FADs and the lower labor costs based on the ease of using the FADs, compared to the existing pelvic body blocks. For these reasons, if this proposed rule is made final, NHTSA does not anticipate a significant economic impact on a substantial number of small businesses.

C. Executive Order 13132 (Federalism)

NHTSA has examined today's proposed rule pursuant to Executive Order 13132 (64 FR 43255, August 10, 1999) and concluded that no additional consultation with States, local governments or their representatives is mandated beyond the rulemaking process. The agency has concluded that the rulemaking would not have sufficient federalism implications to warrant consultation with State and local officials or the preparation of a federalism summary impact statement. The proposed rule would not have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government."

NHTSA rules can preempt in two ways. First, the National Traffic and Motor Vehicle Safety Act contains an express preemption provision: When a motor vehicle safety standard is in effect under this chapter, a State or a political subdivision of a State may prescribe or continue in effect a standard applicable to the same aspect of performance of a motor vehicle or motor vehicle equipment only if the standard is identical to the standard prescribed under this chapter.

49 U.S.C. § 30103(b)(1). It is this statutory command by Congress that preempts any non-identical State legislative and administrative law addressing the same aspect of performance.

The express preemption provision described above is subject to a savings clause under which “[c]ompliance with a motor vehicle safety standard prescribed under this chapter does not exempt a person from liability at common law.” 49 U.S.C. § 30103(e) Pursuant to this provision, State common law tort causes of action against motor vehicle manufacturers that might otherwise be preempted by the express preemption provision are generally preserved. However, the Supreme Court has recognized the possibility, in some instances, of implied preemption of such State common law tort causes of action by virtue of NHTSA’s rules, even if not expressly preempted. This second way that NHTSA rules can preempt is dependent upon there being an actual conflict between an FMVSS and the higher standard that would effectively be imposed on motor vehicle manufacturers if someone obtained a State common law tort judgment against the manufacturer, notwithstanding the manufacturer’s compliance with the NHTSA standard. Because most NHTSA standards established by an FMVSS are minimum standards, a State common law tort cause of action that seeks to impose a higher standard on motor vehicle manufacturers will generally not be preempted. However, if and when such a conflict does exist - for example, when the standard at issue is both a minimum and a maximum standard - the State common law tort cause of action is impliedly preempted. See Geier v. American Honda Motor Co., 529 U.S. 861 (2000).

Pursuant to Executive Order 13132 and 12988, NHTSA has considered whether this proposed rule could or should preempt State common law causes of action. The agency’s ability to announce its conclusion regarding the preemptive effect of one of its rules reduces the likelihood that preemption will be an issue in any subsequent tort litigation.

To this end, the agency has examined the nature (e.g., the language and structure of the regulatory text) and objectives of today's proposed rule and finds that this proposed rule, like many NHTSA rules, would prescribe only a minimum safety standard. As such, NHTSA does not intend that this proposed rule would preempt state tort law that would effectively impose a higher standard on motor vehicle manufacturers than that established by today's proposed rule. Establishment of a higher standard by means of State tort law would not conflict with the minimum standard proposed here. Without any conflict, there could not be any implied preemption of a State common law tort cause of action.

D. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995 (UMRA) requires Federal agencies to prepare a written assessment of the costs, benefits and other effects of proposed or final rules that include a Federal mandate likely to result in the expenditure by State, local or tribal governments, in the aggregate, or by the private sector, of more than \$100 million annually (adjusted annually for inflation, with base year of 1995). UMRA also requires an agency issuing a final rule subject to the Act to select the "least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule." If made final, this proposed rule would not result in a Federal mandate that would likely result in the expenditure by State, local or tribal governments, in the aggregate, or by the private sector, of more than \$100 million annually (adjusted annually for inflation, with base year of 1995).

E. National Environmental Policy Act

NHTSA has analyzed this proposed rule for the purposes of the National Environmental Policy Act. The agency has determined that implementation of this action will not have any significant impact on the quality of the human environment.

F. Executive Order 12778 (Civil Justice Reform)

With respect to the review of the promulgation of a new regulation, section 3(b) of Executive Order 12988, “Civil Justice Reform” (61 FR 4729, February 7, 1996) requires that Executive agencies make every reasonable effort to ensure that the regulation: (1) Clearly specifies the preemptive effect; (2) clearly specifies the effect on existing Federal law or regulation; (3) provides a clear legal standard for affected conduct, while promoting simplification and burden reduction; (4) clearly specifies the retroactive effect, if any; (5) adequately defines key terms; and (6) addresses other important issues affecting clarity and general draftsmanship under any guidelines issued by the Attorney General. This document is consistent with that requirement.

Pursuant to this Order, NHTSA notes as follows. The preemptive effect of this proposed rule is discussed above. NHTSA notes further that there is no requirement that individuals submit a petition for reconsideration or pursue other administrative proceeding before they may file suit in court.

G. Paperwork Reduction Act (PRA)

Under the PRA of 1995, a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. In this notice of proposed rulemaking, we are not proposing any “collections of information” (as defined at 5 CFR 1320.3(c)).

H. National Technology Transfer and Advancement Act

Under the National Technology Transfer and Advancement Act of 1995 (NTTAA)(Public Law 104-113), all Federal agencies and departments shall use technical standards that are developed or adopted by voluntary consensus standards bodies, using such

technical standards as a means to carry out policy objectives or activities determined by the agencies and departments. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standards bodies, such as the International Organization for Standardization (ISO) and the Society of Automotive Engineers (SAE). The NTTAA directs us to provide Congress, through OMB, explanations when we decide not to use available and applicable voluntary consensus standards.

The agency identified an ISO standard (TR 1417-1974) and an SAE standard (J384, Rev. JUN94) that have testing recommendations for seat belt anchorages. Both standards recommend the use of body blocks, similar to those currently specified in FMVSS No. 210, for applying the required test loads. As noted in the preamble, there are advantages to the proposed FADs over the current FMVSS No. 210 body blocks, including that the FADs require significantly less effort and time to install in a test vehicle. Accordingly, we have decided to propose using the FADs in FMVSS No. 210, rather than the body blocks used in the ISO and SAE standards.

Consistent with the Act's goal of eliminating the agency's cost of developing its own standards, NHTSA has based the external dimensions of the FAD1 on the "Golden Shell" digital data developed by UMTRI as a representation of the 50th percentile male. By so doing, the agency is saving resources by making use of pertinent technical information that is already available.

I. Plain Language

Executive Order 12866 requires each agency to write all rules in plain language.

Application of the principles of plain language includes consideration of the following questions:

- Have we organized the material to suit the public's needs?
- Are the requirements in the rule clearly stated?
- Does the rule contain technical language or jargon that isn't clear?
- Would a different format (grouping and order of sections, use of headings, paragraphing) make the rule easier to understand?
- Would more (but shorter) sections be better?
- Could we improve clarity by adding tables, lists, or diagrams?
- What else could we do to make the rule easier to understand?

If you have any responses to these questions, please write to us with your views.

VII. Public Participation

How do I prepare and submit comments?

Your comments must be written and in English. To ensure that your comments are correctly filed in the Docket, please include the docket number of this document in your comments.

Your comments must not be more than 15 pages long. (49 CFR 553.21). We established this limit to encourage you to write your primary comments in a concise fashion. However, you may attach necessary additional documents to your comments. There is no limit on the length of the attachments.

Please submit two copies of your comments, including the attachments, to the Docket at the address given above under ADDRESSES.

Comments may also be submitted to the docket electronically by logging into <http://www.regulations.gov>. Follow the online instructions for submitting comments.

Please note that pursuant to the Data Quality Act, in order for substantive data to be relied upon and used by the agency, it must meet the information quality standards set forth in the OMB and DOT Data Quality Act guidelines. Accordingly, we encourage you to consult the guidelines in preparing your comments. OMB's guidelines may be accessed at <http://www.whitehouse.gov/omb/fedreg/reproducible.html>.

How can I be sure that my comments were received?

If you wish Docket Management to notify you upon its receipt of your comments, enclose a self-addressed, stamped postcard in the envelope containing your comments. Upon receiving your comments, Docket Management will return the postcard by mail.

How do I submit confidential business information?

If you wish to submit any information under a claim of confidentiality, you should submit three copies of your complete submission, including the information you claim to be confidential business information, to the Chief Counsel, NHTSA, at the address given above under FOR FURTHER INFORMATION CONTACT. In addition, you should submit two copies, from which you have deleted the claimed confidential business information, to Docket Management at the address given above under ADDRESSES. When you send a comment containing information claimed to be confidential business information, you should include a cover letter setting forth the information specified in our confidential business information regulation. (49 CFR Part 512.)

Will the agency consider late comments?

We will consider all comments that Docket Management receives before the close of business on the comment closing date indicated above under DATES. To the extent possible, we will also consider comments that Docket Management receives after that date. If Docket Management receives a comment too late for us to consider in developing a final rule (assuming that one is issued), we will consider that comment as an informal suggestion for future rulemaking action.

How can I read the comments submitted by other people?

You may read the comments received by Docket Management at the address given above under ADDRESSES. The hours of the Docket are indicated above in the same location. You may also see the comments on the Internet. To read the comments on the Internet, go to <http://www.regulations.gov>. Follow the online instructions for accessing the dockets.

Please note that even after the comment closing date, we will continue to file relevant information in the Docket as it becomes available. Further, some people may submit late comments. Accordingly, we recommend that you periodically check the Docket for new material.

List of Subjects in 49 CFR Part 571

Imports, Motor vehicle safety, Motor vehicles, and Tires.

In consideration of the foregoing, NHTSA proposes to amend 49 CFR Part 571 as set forth below.

PART 571-FEDERAL MOTOR VEHICLE SAFETY STANDARDS

1. The authority citation for part 571 of title 49 continues to read as follows:

Authority: 49 U.S.C. 322, 30111, 30115, 30117, and 30166; delegation of authority at 49

CFR 1.50.

2. Section 571.5 by adding paragraph (j)(5) to read as follows:

§ 571.5 Matter incorporated by reference.

* * * * *

(j) * * *

(5) “Drawing Package for the Force Application Device (FAD) FAD1 and FAD2,” June 6, 2006, into § 571.210.

* * * * *

3. Section 571.210 is amended by: adding to S3, in alphabetical order, the definitions of “actuator,” “bridged pull yoke,” “FAD1,” “FAD2,” “longitudinal centerline,” and “seat centerline”; by revising S4.2.1 and S4.2.2; by adding S5.3, S5.4 and S7, and by adding Figures 5 and 6, to read as follows:

§ 571.210 Standard No. 210, Seat belt assembly anchorages.

* * * * *

S3. Definitions.

Actuator means the device used to apply the load in performing testing according to the procedures described in S5 and S7 of this standard.

Bridged pull yoke means the yoke that bridges the torso and pelvis on the FAD1 or FAD2.

FAD1 means a force application device specified in drawings NHTSA-210-12J-A, “Drawing Package for the Force Application Device (FAD) FAD1 and FAD2,” June 6, 2006 (incorporated by reference; see §571.5). (FAD1 is depicted in Figure 5 (figure provided for illustration purposes).)

FAD2 means a force application device that is smaller than FAD1, specified in drawings NHTSA-210-12J-B, “Drawing Package for the Force Application Device (FAD) FAD1 and FAD2,” June 6, 2006 (incorporated by reference; see §571.5). (FAD2 is depicted in Figure 6 (figure provided for illustration purposes).)

Longitudinal centerline of a forward and rear-facing seat refers to the line formed by the intersection of the seating surface and the vertical plane that passes through the “seating reference point” (as defined at 49 CFR 571.3) and is parallel to the longitudinal centerline of the vehicle. For a side-facing seat, longitudinal centerline refers to the intersection of the seating surface and the vertical plane that passes through the seating reference point and is parallel to the transverse centerline of the vehicle.

* * * * *

Seat centerline refers to the line formed by the intersection of the seating surface and the vertical plane that passes through the “seating reference point” (as defined at 49 CFR 571.3) and is parallel to the direction that the seat faces.

* * * * *

S4.2 Strength.

S4.2.1(a) For vehicles manufactured before [date inserted would be the first September 1st that is three years from the date of publication of a final rule], except as provided in S4.2.5, the anchorages, attachment hardware, and attachment bolts for any of the following seat belt assemblies shall withstand a 22,241 N (5,000 pound) force when tested in accordance with S5.1 of this standard:

- (1) Type 1 seat belt assembly; and

(2) Lap belt portion of either a Type 2 or automatic seat belt assembly, if such seat belt assembly is equipped with a detachable upper torso belt.

(b) For vehicles manufactured on or after [date inserted would be the first September 1st that is three years from the date of publication of a final rule], except as provided in S4.2.5, the anchorages, attachment hardware, and attachment bolts for any of the following seat belts assemblies shall withstand a 22,241 N (5,000 pound) force when tested in accordance with S5.3 of this standard:

(1) Type 1 seat belt assembly; and

(2) Lap belt portion of either a Type 2 or automatic seat belt assembly, if such seat belt assembly is equipped with a detachable upper torso belt.

S4.2.2(a) For vehicles manufactured before [date inserted would be the first September 1st that is three years from the date of publication of a final rule], except as provided in S4.2.5, the anchorages, attachment hardware, and attachment bolts for any of the following seat belt assemblies shall withstand a 13,345 N (3,000 pound) force applied to the lap belt portion of the seat belt assembly simultaneously with a 13,345 N (3,000 pound) force applied to the shoulder belt portion of the seat belt assembly, when tested in accordance with S5.2 of this standard:

(1) Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208); and

(2) Type 2 and automatic seat belt assemblies that are installed at a seating position required to have a Type 1 or Type 2 seat belt assembly by Standard No. 208 (49 CFR 571.208).

(b) For vehicles manufactured on or after [date inserted would be the first September 1st that is three years from the date of publication of a final rule], except as provided in S4.2.5, the anchorages, attachment hardware, and attachment bolts for any of the following seat belt

assemblies shall withstand a 13,345 N (3,000 pound) force applied to the lap belt portion of the seat belt assembly simultaneously with a 13,345 N (3,000 pound) force applied to the shoulder belt portion of the seat belt assembly, when tested in accordance with S5.4 of this standard:

(1) Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208); and

(2) Type 2 and automatic seat belt assemblies that are installed at a seating position required to have a Type 1 or Type 2 seat belt assembly by Standard No. 208 (49 CFR 571.208).

* * * * *

S5.3 Testing seating positions with Type 1 seat belt assemblies.

(a) Position a FAD1 as specified in S7. When testing in accordance with S4.2.4, if after the FAD1 devices are installed, but prior to conducting the test, there is contact between the FAD1s, or if FAD1s cannot be positioned side-by-side due to contact, replace an inboard FAD1 with a FAD2. If contact remains and another inboard designated seating position exists, replace an additional inboard FAD1 with a FAD2. If contact remains and no other inboard designated seating position exists, replace the non-driver side outboard FAD1 with a FAD2. If there is still contact, replace the driver side outboard FAD1 with a FAD2.

(b) After positioning the FAD1 or FAD2, as appropriate, in accordance with S7, apply a force of 22,241 N to the bridged pull yoke on the FAD1 or to the bridged pull yoke on the FAD2, in the direction in which the seat faces, in a vertical plane that passes through the “seating reference point” (as defined in 49 CFR 571.3) and that is parallel to the longitudinal centerline of the vehicle for forward- and rear-facing seats, or that is perpendicular to the longitudinal centerline of the vehicle for side-facing seats, with an initial force application angle of 10 +/- 5 degrees above the horizontal plane and +/- 5 degrees from the vertical plane. Apply the force at

the onset rate of not more than 222,411 N per second. Attain the 22,241 N force within 30 seconds and maintain it for 10 seconds.

S5.4 Testing seats with Type 2 or Type 2A seat belt assemblies.

(a) Position a FAD1 as specified in S7. When testing in accordance with S4.2.4, if after the FAD1 devices are installed, but prior to conducting the test, there is contact between the FAD1s, or if FAD1s cannot be positioned side-by-side due to contact, replace an inboard FAD1 with a FAD2. If contact remains and another inboard designated seating position exists, replace an additional inboard FAD1 with a FAD2. If contact remains and no other inboard designated seating position exists, replace the non-driver side outboard FAD1 with a FAD2. If there is still contact, replace the driver side outboard FAD1 with a FAD2.

(b) After positioning the FAD1 or FAD2, as appropriate, in accordance with S7, apply forces of 13,345 N simultaneously to the yoke attached to the torso of the FAD1 or FAD2 and to the eyelet attached to the pelvis of the FAD1 or FAD2, in the direction in which the seat faces, in a vertical plane that passes through the “seating reference point” (as defined in 49 CFR 571.3), and that is parallel to the longitudinal centerline of the vehicle for forward- and rear-facing seats, or that is perpendicular to the longitudinal centerline of the vehicle for side-facing seats, with an initial force application angle of 10+/- 5 degrees above the horizontal plane and +/- 5 degrees from the vertical plane. Apply the forces at the onset rate of not more than 133,447 N per second. Attain the 13,345 N force within 30 seconds of the initial application of force and maintain it for 10 seconds.

* * * * *

S7. Force Application Device (FAD)1 and FAD2 Positioning Procedure.

(a) If adjustable, place the seat in its rearmost position and, if separately adjustable in the vertical direction, at its lowest position.

(b) If adjustable, place the seat back at the manufacturer's design seat back angle, as measured by SAE J826 (July 1995) (incorporated by reference, see §571.5).

(c) Identify and mark the longitudinal centerline for each designated seating position.

(d) Place the FAD1 or FAD2, as appropriate, on the seat such that the midsagittal plane of the FAD1 or FAD2 is vertical and within ± 10 mm of the seat centerline, with the torso in contact with the seat back.

(e) While maintaining the alignment with the longitudinal centerline as described in S7.(d), move the pelvis portion of the FAD1 or FAD2 toward the seat back until it contacts the seat back.

(f) If the torso is not in contact with the seat back, rotate it against the seat back while holding the pelvis in place until the back of the torso is in contact with the seat back.

(g) Apply a horizontal force of 180 ± 5 N to the yoke attached to the torso of the FAD1 or FAD2 towards the seat back. While performing this step, ensure that the pelvis portion of the FAD1 or FAD2 remains in contact with the seat and seat back.

(h) Buckle and position the seat belt so that the lap belt secures the pelvis portion of the FAD1 or FAD2 and the shoulder strap secures the torso portion of the FAD1 or FAD2.

(i) Remove enough slack such that a 31.75 mm ($1\frac{1}{4}$ inch) diameter wooden rod will not pass between the FAD1 or FAD2 and the lap and shoulder belt with a maximum force of 2.22 N (0.5 lb-force) exerted tangent to the FAD1 or FAD2 shoulder or lap belt interface and ensure that the seat belt is locked in this position.

(j) If testing a Type 2 or Type 2A seat belt assembly, attach one actuator to the yoke attached to the torso of the FAD1 and one to the eyelet attached to the pelvis of the FAD1, or to the torso of the FAD2 and one to the eyelet attached to the pelvis of the FAD2. If testing a Type 1 seat belt assembly, attach the actuator to the bridged pull yoke of the FAD 1 or to the bridged pull yoke of the FAD2.

* * * * *

FAD 1

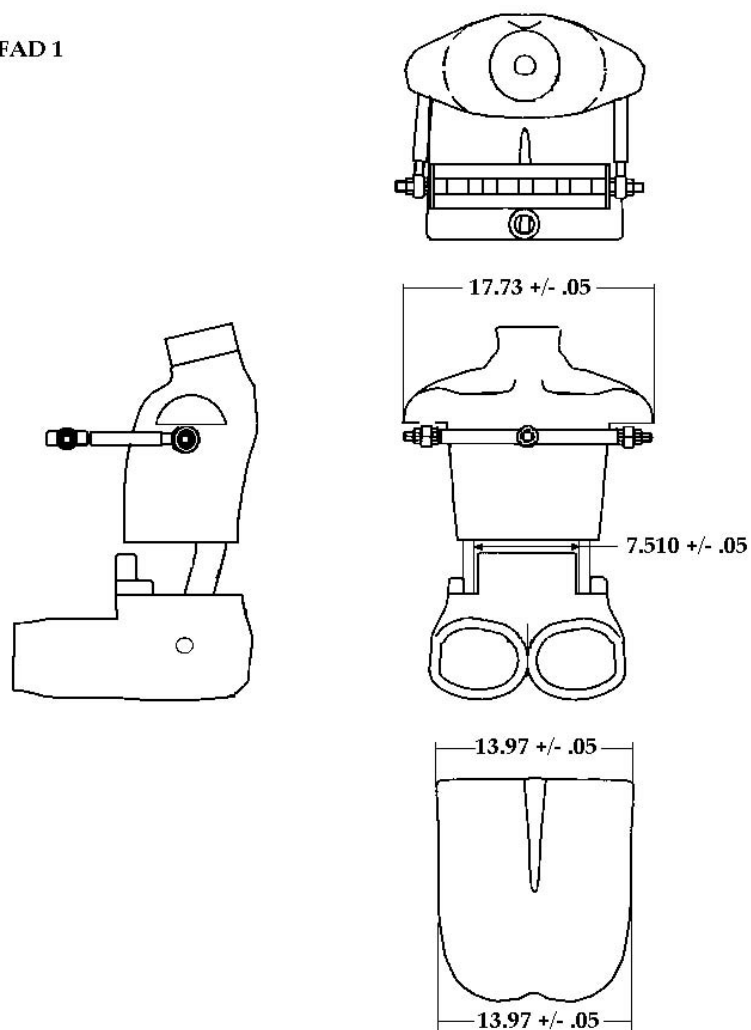
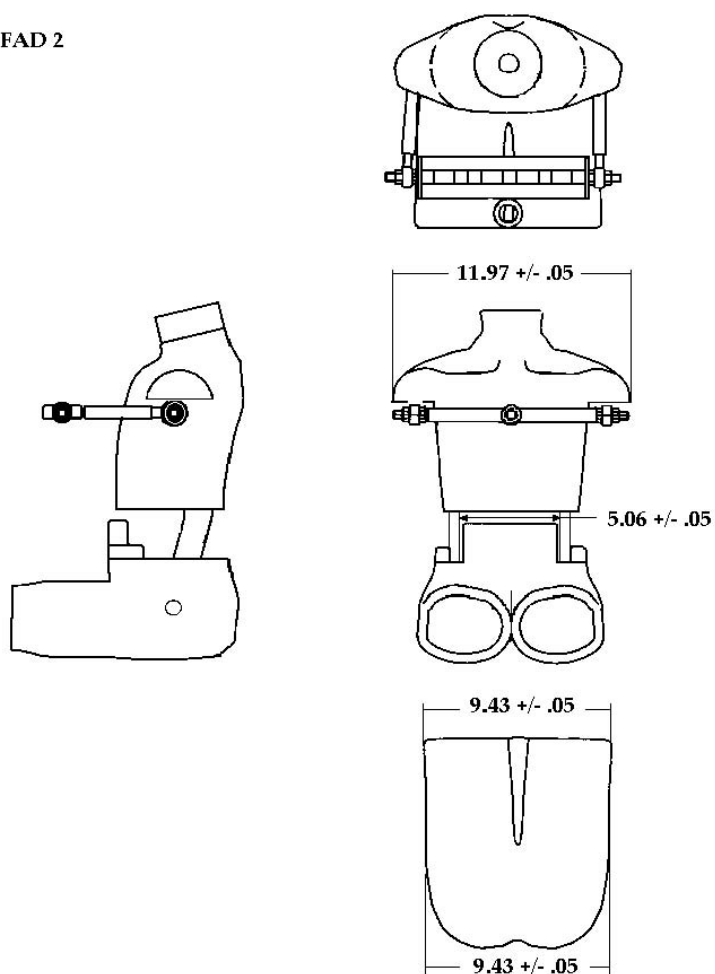


Figure 5 – FAD1 (provided for illustration purposes)

FAD 2

**Figure 6 – FAD2 (provided for illustration purposes)**

Issued on: March 23, 2012

Christopher J. Bonanti
Associate Administrator for Rulemaking

Billing Code: 4910-59-P

[Signature page for NPRM, seat belt assembly anchorages, RIN 2127-AL05]

[FR Doc. 2012-7623 Filed 03/27/2012 at 8:45 am; Publication Date: 03/30/2012]